

**REMARKS**

The Office Action mailed June 3, 2011, has been received and its contents carefully noted. This response is filed within three months of the mailing date of the Office Action and therefore is believed to be timely without extension of time. Accordingly, Applicant respectfully submits that this response is being timely filed.

Claims 1-9, 11-22 and 24-26 were pending in the present application prior to the above amendment. Claims 1, 3, 6, 8, 14, 16, 19 and 21 are amended, and new claims 27 and 28 are added to recite additional protection to which Applicant is entitled. Accordingly, claims 1-9, 11-22 and 24-28 are now pending in the present application, of which claims 1-4, 6-9, 14-17 and 19-22 are independent. For the reasons set forth in detail below, all claims are believed to be in condition for allowance. Favorable reconsideration is requested.

Paragraph 4 of the Office Action rejects claims 6, 7, 9, 11-13, 19, 20, 22 and 24-26 as obvious based on the combination of U.S. Patent Application Publication No. 2001/0055841 to Yamazaki, JP 2003-058077 to Takao, U.S. Patent No. 6,355,941 to Yamazaki and U.S. Patent Application Publication No. 2002/0016250 to Hayakawa. Paragraph 28 of the Office Action rejects claims 1, 2, 5-7, 10, 13-15, 18, 19, 23 and 24 as obvious based on the combination of Yamazaki '841, Takao, Yamazaki '941, Hayakawa and U.S. Patent Application Publication No. 2003/0143437 to Ohtsu. Although claims 4 and 17 are not listed at paragraph 28, paragraph 42 of the Office Action apparently rejects claims 4 and 17 as obvious based on the combination of Yamazaki '841, Takao, Yamazaki '941, Hayakawa and Ohtsu. The rejections are traversed for the reasons advanced in detail below.

As stated in MPEP §§ 2142-2144.04, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some reason, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some reason to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and

the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art.” In re Kotzab, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

The prior art, either alone or in combination, does not teach or suggest all the features of the independent claims. Independent claims 1, 2, 6 and 7 recite “the wiring layer covers the edge portion of the first electrode.” Independent claims 4 and 9 recite “the first electrode covers an edge portion of the wiring layer.” Independent claims 14 and 19 recite “forming a wiring layer over the semiconductor layer … to cover an edge portion of the first electrode.” Independent claims 15 and 20 recite “forming a wiring layer … to cover an edge portion of the first electrode.” Independent claims 17 and 22 recite “forming a first electrode … to cover an edge portion of the wiring layer.” Independent claim 19 recites “forming a wiring layer over the semiconductor layer … to cover an edge portion of the first electrode.” Also, claims 7, 9, 20 and 22 recite “wherein the refractory metal is selected from the group consisting of W (tungsten), Cr (chromium), Al (aluminum), Ta (tantalum), Ni (nickel), Zr (zirconium), Hf (hafnium), V (vanadium), Ir (iridium), Nb (niobium), Pd (lead), Pt (platinum), Mo (molybdenum), Co (cobalt), and Rh (rhodium).” Further, at this opportunity, claims 1, 6, 14 and 19 are amended to remove features which are not believed to be critical to the patentability of the claims. For the reasons provided below, Yamazaki ‘841, Takao, Yamazaki ‘941, Hayakawa and Ohtsu, either alone or in combination, do not teach or suggest the above-referenced features of the present invention.

The Office Action asserts that “[Yamazaki ‘941] discloses a wiring layer (157) covering an edge portion (Figure 4A) of a first electrode (158) … (paragraph 119)” (page 3, Paper No. 20110525; see also, page 4, which additionally cites paragraphs 234-237, and page 8). Applicant respectfully disagrees and traverses the above-referenced assertions in the Office Action. Yamazaki ‘941 does not disclose a wiring layer 157, a first electrode 158 or Figure 4A.

Also, regarding claims 7, 9, 20 and 22, the Office Action asserts that “[Hayakawa] teaches the equivalence of photocatalytic materials” (pages 4, 6, 9, 10 and 11, id.). Applicant respectfully disagrees and traverses the above-referenced assertions in the Office Action. Hayakawa does not teach or suggest any of W (tungsten), Cr (chromium), Al (aluminum), Ta

(tantalum), Ni (nickel), Zr (zirconium), Hf (hafnium), V (vanadium), Ir (iridium), Nb (niobium), Pd (lead), Pt (platinum), Mo (molybdenum), Co (cobalt), and Rh (rhodium).

Therefore, Applicant respectfully submits that Yamazaki '841, Takao, Yamazaki '941, Hayakawa and Ohtsu, either alone or in combination, do not teach or suggest the above-referenced features of claims 1, 2, 4, 6, 7, 9, 14, 15, 17, 19, 20 and 22.

Since Yamazaki '841, Takao, Yamazaki '941, Hayakawa and Ohtsu do not teach or suggest all the claim limitations, a *prima facie* case of obviousness cannot be maintained. Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 103(a) are in order and respectfully requested.

Paragraph 23 of the Office Action rejects claims 8 and 21 as obvious based on the combination of Yamazaki '841 and Takao. Paragraph 52 of the Office Action rejects claims 3 and 16 as obvious based on the combination of Yamazaki '841 and Takao. The rejections are traversed for the reasons advanced in detail below.

The prior art, either alone or in combination, does not teach or suggest all the features of the independent claims. Without conceding the basis for the Examiner's rejections, independent claims 3, 8, 16 and 21 are amended to recite "the gate electrode having a convex curved face from an edge to an opposite edge," which is supported in the present specification, for example, by at least Figure 1A. Also, at this opportunity, claims 3, 8 and 16 are amended to remove features which are not believed to be critical to the patentability of the claims. For the reasons provided below, Yamazaki '841 and Takao, either alone or in combination, do not teach or suggest the above-referenced features of the present invention.

The Office Action relies on Takao to allegedly teach a gate electrode (pages 7 and 12-13, *id.*). The Office Action explicitly refers to Takao's gate electrode 26 at page 13. However, Takao's gate electrode 26 has a flat face. Therefore, Applicant respectfully submits that Yamazaki '841 and Takao, either alone or in combination, do not teach or suggest a gate electrode having a convex curved face from an edge to an opposite edge.

Since Yamazaki '841 and Takao do not teach or suggest all the claim limitations, a *prima facie* case of obviousness cannot be maintained. Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 103(a) are in order and respectfully requested.

New claims 27 and 28 are added to recite additional protection to which Applicant is entitled. In claims 1, 3, 6 and 8, the feature of "an insulating layer covering an edge portion

of the semiconductor layer" is canceled without prejudice or disclaimer, and new claim 27 recites this feature. In claims 14, 16, 19 and 21, the feature of "forming an insulating layer covering an edge portion of the semiconductor layer" is canceled without prejudice or disclaimer, and new claim 28 recites this feature. For at least the reasons stated above, Applicant respectfully submits that new claims 27 and 28 are in condition for allowance.

In view of the foregoing, Applicant respectfully requests allowance of the instant application. If a conference would be helpful in expediting prosecution of the instant application, the Examiner is invited to telephone the undersigned to arrange such a conference.

Respectfully submitted,

**NIXON PEABODY, LLP**

/Jeffrey L. Costellia, Reg. No. 35,483/  
Jeffrey L. Costellia  
Registration No. 35,483

**NIXON PEABODY LLP**  
CUSTOMER NO.: 22204  
401 9th Street, N.W., Suite 900  
Washington, DC 20004  
Tel: 202-585-8000  
Fax: 202-585-8080